

### **Implementing Effective Preventive & Predictive Maintenance Programs**

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### Introduction

Effectively planned Preventive & Predictive Maintenance which is integrated with the workflow is critical for a successful company and an integral part of maintenance management strategies such as RCM, RBM, TPM, and even 6-Sigma. This comprehensive 5-day training seminar has been designed to benefit both qualified new professionals as well as experienced professionals who may be involved in the rollout of a comprehensive Maintenance & Asset Management process or auditing an existing process. It covers all the steps required in developing a successful Preventive & Predictive Maintenance Program from failure behavior and finding the right preventive maintenance task until a well-managed preventive & predictive maintenance program, fully integrated with the workflow and the CMMS.

Leading industrial organizations are evolving away from reactive ("fix-it-when-it-breaks") management into preventive and predictive management ("anticipating, planning, and fix-it-before-it-breaks"). This evolution requires well-planned and executed actions on several fronts.

#### This training seminar will highlight:

- Preventive & predictive maintenance strategies and their position within Asset Management
- Risk Based Maintenance
- · Maintenance & reliability engineering best practices
- Best practices in planning and scheduling (workflow management)
- The application of CMMS
- Monitoring & managing performance with Key Performance Indicators (KPI's)
- Continuous improvement aspects

# **Objectives**

### At the end of this training seminar, you will learn to:

- Understand how world-class organizations solve common planning problems
- Improve productivity through use of better, more timely information
- Implement a practical and effective predictive maintenance effort
- · Improve consistency and reliability of asset information
- · Optimize preventive and predictive maintenance strategies

# Training Methodology

The training seminar will be conducted along interactive workshop principles. There will be a variance of lectures and practical exercises. Experiences from different areas will be discussed. There will be many opportunities for discussion

and sharing experiences.

# **Organizational Impact**

### By attending this seminar your organization will get sustainable results:

- A comprehensive understanding of a developing preventive & predictive maintenance programs
- Integrate Preventive & Predictive Maintenance into the workflow & CMMS
- · Optimize the workflow
- Develop an effective system to monitor the performance
- · Optimization of the maintenance effort
- · Manage full and effective control of the maintenance budget

# **Personal Impact**

### By attending the participants will:

- Know and identify which equipment components should be part of your preventive & predictive maintenance plan
- Know how to establish the most appropriate failure finding interval for protective devices and how to come up with the failure risk of equipment that's subject to condition-based maintenance
- Know the right way to establish the optimal inspection frequency for equipment in continuous operation
- Understand the integration of preventive & predictive maintenance strategies into workflow and CMMS
- Know how to arrive at the economic life of an asset where its utilization declines as it ages
- · Add value for themselves
- Be able to plan and develop a future career

### Who Should Attend?

### This training seminar is suitable to a wide range of professionals but will greatly benefit:

- Maintenance Managers & Supervisors
- Personnel designated as planners, or identified to become planners
- Predictive Maintenance Technicians & Supervisors
- · Key leaders from each Maintenance craft
- · Maintenance & Reliability engineers
- Materials Management Managers/Supervisors
- · CMMS key users

### **SEMINAR OUTLINE**

### DAY 1

### The Need for Maintenance

- Maintenance & Asset Management as a business process
- Risk Based Maintenance (RBM)
  - · Causes of Failure
  - · Likelihood & Severity of Failure Risk Analysis
  - Failure Mode Effect & Criticality Analysis (FMECA)
  - Choosing the (preventive) maintenance tasks
- · Optimization of Maintenance Decisions
  - Failure Pattern Identification
  - Statistical Analysis of Failures

- · Weibull Analysis
- · Zero Base Budgeting
  - o Define the production requirement
  - o Define the maintenance requirement

### DAY 2

### **Developing the CMMS**

- Database & structure
- CMMS & workflow
- CMMS & Maintenance Strategies
- Asset register
- · Configuration management

### DAY<sub>3</sub>

### The Planning Function

- The maintenance workflow and how it relates to the preventive maintenance strategy
- Roles & responsibilities in work preparation, planning and scheduling
- · Principles of work preparation & planning
- · Principles of scheduling
- Network planning

### DAY 4

### **Predictive Maintenance**

- Potential Failure Analysis (PFA)
  - Integration of PFA with FMECA & RBM
  - · Understanding the P-F Interval
  - Decide which Technologies to Apply
- Predictive maintenance technologies
  - Vibration analysis
  - Visual inspection
  - Infrared Thermography
  - Temperature sensitive labels
  - · Megger tests
  - Ultrasonics
  - o Oil analysis

### DAY 5

### **Control of the Maintenance Process**

- Implementation stages of preventive & predictive maintenance strategies
- CMMS integration
- Reporting use of (Key) Performance Indicators
- Case study



info@bptcenter.com

www.bptcenter.com